

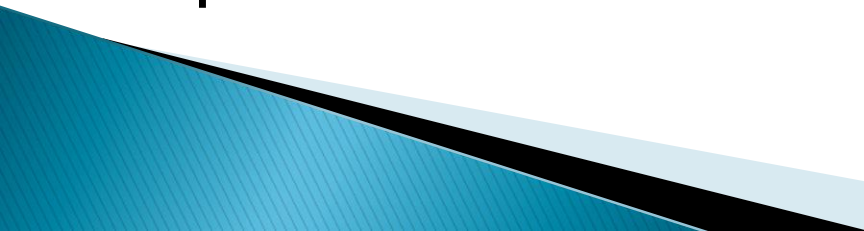
# Delaware Public Health Laboratory

## State CRE Laboratory

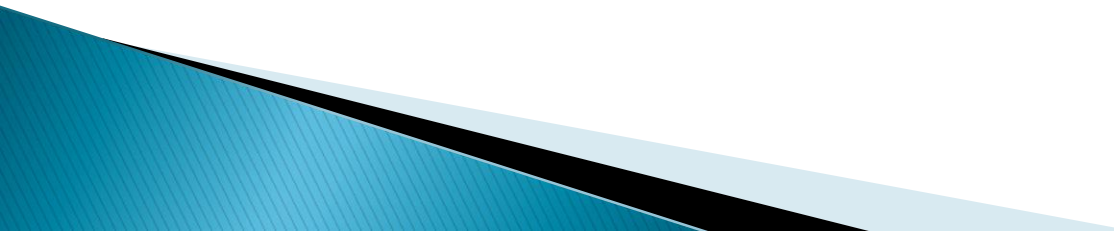
CDC Epidemiology & Laboratory Capacity (ELC)  
Grant

Debbie Rutledge, MBA MT(ASCP)  
Infectious Disease Laboratory Manager II


# Antimicrobial Resistance

- ▶ 2 million illnesses & 23,000 deaths annually related to Antibiotic Resistance (AR)
  - ▶ Carbapenem-Resistant Enterobacteriaceae (CRE) increasing resistance to all therapeutic agents.
  - ▶ Increasing resistance of *Pseudomonas aeruginosa* (intrinsic, non carbapenemase vs. carbapenemase mechanisms)
  - ▶ Carbapenemases = transferable = greater public health threat
- 

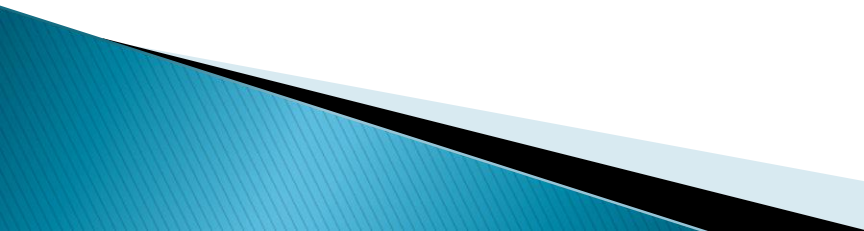
# State CRE Laboratory

- ▶ Develop capacity to confirm CRE & carbapenem resistant *Pseudomonas aeruginosa* (CRPA) & detect carbapenemase mechanisms.
  - ▶ Early detection & implement timely local prevention efforts
  - ▶ Improve response to outbreaks & speed up identification of CRE
  - ▶ Antimicrobial Resistance Laboratory Network with 7 regional labs for enhanced bacteria and fungal testing capabilities (Maryland).
- 

# ELC Grant

- ▶ New activity – just awarded August 30, 2016
  - ▶ First conference call with CDC – 9/30/2016
  - ▶ DPHL to participate in HAI/AR Prevention programs with hospital infection control preventionists (ICP)
  - ▶ Adopt & validate PCR and other testing methods to detect most common & important resistance mechanisms
  - ▶ Implement bacterial isolate storage, transport to AR Regional labs as requested.
- 

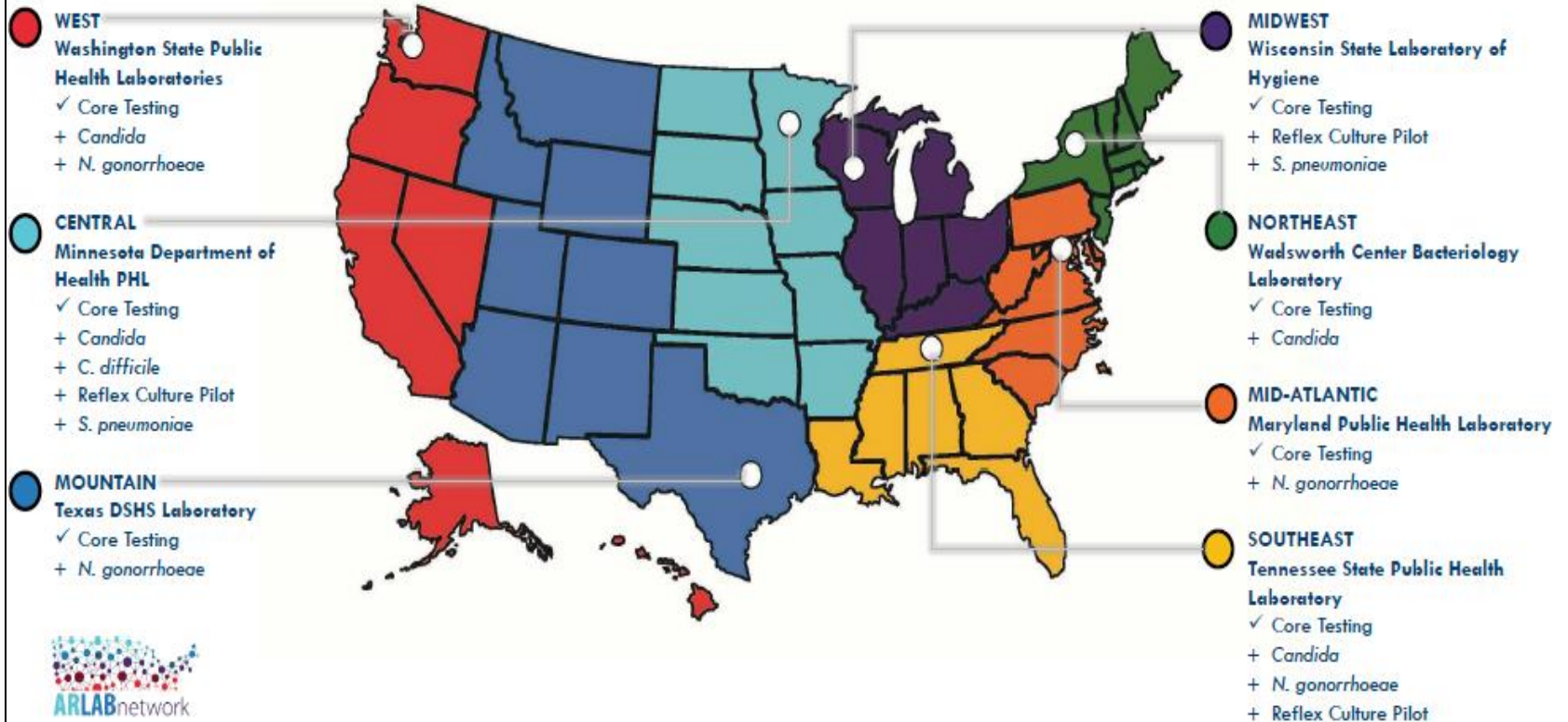
# Recommended Laboratory testing

- ▶ Species Identification – MADITOF or automated instrument
  - ▶ Antimicrobial Susceptibility testing by another method than provider–disc diffusion/Etest or broth microdilution
  - ▶ Phenotypic methods for carbapenemase production–carbapenem inactivation method or CarbaNP assay
  - ▶ Molecular detection – PCR targets
    - bla KPC & bla NDM-1 genes
    - OXA-48 like genes
    - bla VIM
    - Other optional targets– bla IMP, & mcr-1
- 

# Collect Isolates from HCF

- ▶ All *Escherichia coli*, *Klebsiella oxytoca*, *Klebsiella pneumoniae*, & *Enterobacter spp.*
  - Resistant to imipenem, meropenem, doripenem (MIC  $\geq$  4ug/ml) or ertapenem ( $\geq$  2)
- ▶ All *Pseudomonas aeruginosa*
  - Resistant to imipenem, meropenem, or doripenem ( $\geq$  8)
- ▶ If states do not have the capacity to test all CRE isolates, may choose sampling scheme based on burden & local testing capacity

## CDC Antibiotic Resistance Laboratory Network: 7 Regional Labs





# Questions or Comments

- ▶ Workload Volume? Can hospital laboratories estimate # isolates from last year?
- ▶ We need your help in sending us these targeted isolates.
- ▶ More information can be found at
- ▶ <http://www.cdc.gov/drugresistance/solutions-initiative/ar-lab-networks.html>